

## SECTION D

# Additional Research on Contamination from Mining-Related Activities

A significant amount of mining-related research is conducted within the U.S. Geological Survey (USGS) in addition to that conducted through the Toxic Substances Hydrology Program. The Program emphasis has been on environmental issues related to hard-rock mining. The research has been focused on four principal field sites: 1) upper Arkansas River, Colorado; 2) Pinal Creek, Arizona; 3) upper Animas River, Colorado; and 4) Boulder River, Montana. The papers in this section provide a sampling of the additional USGS research activities on mining-related contamination issues from across the country.

Much of the additional mining-related research by the USGS is conducted in cooperation with other federal agencies, and state and local agencies. Federal partners include the Bureau of Land Management (U.S. Department of the Interior), the Forest Service (U.S. Department of Agriculture), the U.S. Environmental Protection Agency (EPA). Some of these efforts include testing and application of field and laboratory methods developed through Program activities, such as the papers by Ball and others and the paper by Nordstrom and others. The paper by Naftz and others describes an effort, supported by EPA, to demonstrate the field application of reactive barrier technology applied to uranium contamination in ground water.

Numerous ongoing USGS investigations address the environmental effects of coal mining, particularly acid mine drainage and its treatment or mitigation. Some of the USGS work on coal-mine drainage is being conducted in District (state) Offices of the USGS, throughout the coal mining regions of the Nation, such as the paper by Cravotta and others. Other coal-related investigations are being conducted by the USGS Energy Resources Program. Other investigations on hard-rock mining, environment issues are being conducted by the USGS Mineral Resources.

The addition of the Biological Resources Division (BRD) to the USGS has facilitated significant collaboration between biologists and scientists from other disciplines in existing Programs. The interdisciplinary teams of the USGS Abandoned Mine Lands Initiative are an example. At the same time, there are significant additional mining-related research activities ongoing within the BRD. The presentation at this meeting of the papers by Fairchild and others and by Wildhaber and others are examples of the continued efforts of BRD scientists to establish interdisciplinary partnerships within USGS.

Additional information on USGS mining-environment research is available through the USGS Mine Drainage Interest Group, on the World Wide Web at: <http://mine-drainage.usgs.gov/mine/>. This web site has links to on-line information on all related USGS programs.

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